

SE - sem - III - 01d - Electrical

EMMI

09/12/15

QP Code : 1183

Duration: 3 hrs

Total Marks: 100

- Note :-**
1. Question No. **1 is compulsory**.
 2. Solve any **four questions** from remaining six questions.
 3. Assume suitable data and state it clearly.
 4. Each question is for 20 marks.

Q1) Solve any four

- a. State the advantages and disadvantages of flux meter.
- b. Explain why the Wheatstone bridge is not used for measuring low value of resistance.
- c. Compare spring controlled and gravity controlled method to produce the controlling torque.
- d. Explain why M.I. instrument is unpolarised.
- e. Briefly explain about the limiting error

Q2)

- a. Explain theory, working principal and construction of D'Arsonval galvanometer.
- b. What are the different difficulties encountered in the measurement of high resistance? Explain how these difficulties are overcome.

Q3)

- a. Explain Hay's bridge for measuring self inductance. Draw neat circuit and phasor diagram. Derive expression for self inductance
- b. Derive the dimensions of charge, current, potential difference (emf), capacitance, resistance and inductance in electrostatic system.

Q4)

- a. For Electrodynamic instrument prove that the instantaneous deflecting torque is given by $T_i = i_1 i_2 dm/d\alpha$ and state its advantages and disadvantages.
- b. Explain with neat diagram the application of d.c. potentiometer.

Q5)

- a. With equivalent circuit and phasor diagram explain the operation of current transformer. What is the significance of ratio error and phase angle error?
- b. A moving coil instrument gives full scale deflection of 24milliA when the potential difference across its terminal is 72milliV. Calculate
 1. Shunt resistance for full scale deflection of 120A.
 2. Series resistance for full scale deflection of 600V.
 3. Power dissipated in the shunt and series resistance in each case.

Q6)

- a. Explain how iron loss is measured with Epstein square method and also explain its construction.
- b. Explain Schering Bridge with neat diagram and phasor diagram.

Q7) Write short note on any two.

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| A. Power factor meter | B. Synchroscope |
| B. Magnetic dipole moment of current | D. Megger |

QP-Con. 10506-15.

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